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**REPORT ON PLANS DETAILING POLLUTION CONTROL FACILITIES TO  
SERVE ZIRCOA, A DIVISION OF CORHART REFRactories  
COMPANY, CUYAHOGA COUNTY, SOLON**

Introduction

Zircoa, A Division of Corhart Refractories Company, is engaged in the extraction of zirconium oxide from zircon sand and in the manufacturing of ultra-high temperature ceramic products. Industrial wastewater results from extraction, grinding and fabrication processes and from a development lab, an x-ray lab and a chemistry lab. Sanitary wastewater is generated by about 100 people.

The entity is located in Cuyahoga County at 31501 Solon Road, Solon, Ohio 44139. The site is on the watershed of an unnamed tributary to Tinker's Creek.

Plans detailing pollution control facilities to serve Zircoa were received at the Ohio EPA, Northeast District Office, on October 4, 1976, from D. E. McBride, Plant Manager. Four copies of a report/plan package entitled "Proposed Grain Plant Modifications; Wastewater Compliance; NPDES; Zircoa, Solon, Ohio; September, 1976" were received. A Permit to Install is not needed since the entity is submitting plans as required by their NPDES

Permit.

Existing Wastewater Treatment Facilities

Process wastewaters from the zirconium oxide extraction process are neutralized with dry lime. The wastewater is then retained in a lagoon to allow the resulting gel to form and settle out. The gel slurry is then pumped, periodically, to a pair of filter beds where the gel is dewatered. The filter beds are periodically excavated and the dewatered gel is disposed of by landfilling.

Wastewater from the various labs and from the fabrication processes is not treated.

Proposed Wastewater Treatment Facilities

Zircoa proposes to treat all contaminated wastewater and to eliminate the wastewater discharge from the zirconia extraction process by recycling. The recycling facility would be as follows: The wastewater stream from the first stage extraction process would be directed to a 600 gallon pH adjustment tank where lime slurry would be added to form a wet silica gel. The gel slurry would then be pumped to a centrifuge for dewatering. The dewatered gel would be disposed of in an approved manner. The centrate would flow to a 1,200 gallon neutral solution storage tank from which the major portion would be recycled to the zirconia extraction process. The remaining portion would be used to make lime slurry.

The wastewater stream from the second stage extraction process would be directed to a 250 gallon pH adjustment tank where lime slurry would be

added to precipitate calcium fluoride. The calcium fluoride slurry would then be pumped to a centrifuge for dewatering. The dewatered calcium fluoride would be disposed of in an approved manner. The centrate would be directed to the first stage pH adjustment tank for recycling.

Auxiliary equipment to the above system would consist of a 45 ton outdoor lime storage bin and a pair of indoor lime hoppers with corresponding feeders, slurry tanks, mixers and pumps. Two flocculent aid tanks and pumps would feed flocculent aids to a solids/liquids separator in the zirconia extraction process and to the first stage pH adjustment tank.

Construction Schedule

Construction is expected to be completed by June 1, 1977.

Estimated Cost

The cost of the above pollution control is estimated to be \$800,000.00.

Tax Credit

The above described pollution control facilities should qualify for tax credit.

Recommendations

Approval of these plans is recommended.

*Dennis E. Lee*

Dennis E. Lee  
District Engineer

DEL/fmk  
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Steven J. Gansel, P.E.  
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